NEW Gasman

personal single gas monitors

CROWCON

Gas Detection You Can Trust

Contents

Introducing the NEW Gasman

The new tiny personal monitors from Crowcon, which are big on performance.

Gasman is Crowcon's new full function personal gas monitor – it is a pocket product which packs a mighty punch. It has been designed to give Crowcon a world class product offering, competing effectively on all aspects of size, weight, specification, performance and price with other current market leading competitor products.

Gasman development has involved further refinement of the i-module concept leading to two major enhancements: smaller size modules, and biased toxic modules. These new versions will also be phased into Tetra production and spares ensuring full interchangeability of i-modules between these two products and thus commonality of spares.

Gasman has been designed to utilise much of the Tetra development, giving customers who have both products a similar 'feel' as to the nature and operation of the product. The software development for Gasman was carried out along the same rigorous lines as with Tetra, offering the same high degree of confidence in the software quality of the product.

Gasman has been designed to meet global market needs, available with Intrinsic Safety Certifications recognised and accepted in virtually all major territories, and having compliance with all relevant International Standards.

This launch pack contains the resources required to present and promote the new Gasman effectively in the market place, including comprehensive product information, details of promotional activities and materials, and comparison with competitor products to assist in confirming Gasman as the product of choice for your customers.

Product description

Gasman personal monitors

Gasman is a new personal gas monitor for detection of flammables, toxics or oxygen. It is a full function monitor designed to compete on a worldwide basis against current market leading products, having a powerful combination of robustness, usability and performance with a competitive price. It is compact and lightweight yet very tough being manufactured from polycarbonate and fully over-moulded with an elastomeric layer.

Gasman is available in two distinct versions, a rechargeable version for all gas types, and a non-rechargeable version for oxygen and toxic versions. In both types, the Gasman uses the i-module technology pioneered in Tetra, but further developed to make the i-modules physically smaller, and to add the ability to utilise biased toxic sensors, particularly those for HCl, Ethylene Oxide and NO. These i-modules are fully interchangeable both within Gasman and between Gasman and Tetra.

Gasman is intended for use within a full range of industrial environments, and therefore will be used within hazardous areas. Compliance with the requirements of hazardous area use is demonstrated by its Intrinsic Safety Certification. Certification at launch will be to ATEX II 2G EEx iad IIC T4 for flammable versions and ATEX II 1G EEx ia IIC T4 for toxic and oxygen versions. These certifications will be valid over an ambient temperature range of at least -20ºC to +55ºC. Gasman will also be taken through the newer IECEx certification in parallel with ATEX. Approvals for North America will be for Class 1 Groups A, B, C, D Division I and certification to both UL and CSA approvals will be completed.

Gasman has been designed with user convenience in mind. Physically it is one of the smallest units available on the market with dimensions of just 90x48x24mm plus the sensor protrusion. It weighs just 90g for the toxic version and 130g for the flammable, also making it one of the lightest units on the market. The small size and low weight combined with its shape make Gasman an extremely comfortable product to wear or carry either using one of the clip options or an optional body harness.

Gasman is exceptionally easy to use. A single button provides all the control functions – switch on, switch off, alarm reset, backlight, and access to a menu for Peak mode, TWA (both 8 hour and 15 minute) and Zero. This operation mirrors the well-regarded operation of Tetra. Gasman provides an audible and visual confidence signal every 10 seconds, and flashes OK on the screen when operating normally.

Gasman has the most effective alarms on the market today featuring the following:

- Loud audible (95dBA) alarm with a range of sounder tones allowing selection of the most appropriate for use, and different tones for Alarm 1, Alarm 2 and TWA alarm
- Crowcon's unique blue/red flashing alarm LEDs. With 4 LEDs in total the visual alarm has unrivalled brightness
- Internal vibrating alarm as standard

The Gasman display is a custom LCD with backlight, having the majority of indications using language independent screen icons. The numeric gas values and status message text strings are displayed using four 'starburst' characters. Gasman accommodates translation of these status messages into suitable alternative language text strings which can be formed using the 'starburst' characters. The display gives the gas concentration and units of measurement and uniquely for flammable gas the units can be configured to show as %LIE and %UEG as an alternative to %LEL for flammable gas, catering for the common language variants. Gasman also displays warnings for calibration due or expired, low battery, or fault.

Gasman has a simple menu accessed, as with Tetra, by double clicking of the button. Icons across the top of the display screen show the available options and single clicks step along the options:

- Peak, TWA, Peak Clear and Zero. Stepping past Zero returns Gasman to normal display
- TWA displays alternately the 8-hour Time Weighted Average and 15 minute Time Weighted Average, identified by the appropriate clock symbol
- Peak Clear cancels any stored Peak reading
- Zero initiates the automatic Zero sequence

Gasman also supports the automated gas test (bump) and calibration as used with Tetra giving indications of pass and fail. Thus if a zero has been performed using the menu and the test mode is activated within 15 minutes the option to calibrate will be available. This allows rapid and user independent checking of operation and calibration where required. In the event that a zero fails this can be acknowledged and Gasman used with its zero left as on start up. In the event of a calibration fail Gasman will lock out preventing use until calibration has been corrected.

Gasman has a unique combination of datalogging and event logging. The datalogger records individual readings on a timed basis, and if set to the standard 1 minute data collection rate will store a huge 900 hours of data – that is 90 x 10-hour shifts or 75 x 12 hour shifts. The event logger records everything that happens to the unit: switch on, switch off, alarms on, alarms cleared, zeroing, calibration, Gas Test, as well as battery voltages and other diagnostics. The number of events which can be stored is over 5000, giving a capacity of at least 90 shifts at 54 events per shift.

Gasman has a wide range of supporting accessories. The standard pocket clip is sprung metal, and optionally an alligator clip can be supplied. Gasman is supplied as standard with a flow cap and a 1-metre length of tubing for calibration purposes. An aspirator is optional. A harness plate can be fitted in place of the clips, allowing use of the same shoulder and chest harness straps as used with Tetra.

Chargers are available as single or 5 way with power supplies appropriate for UK, US or EUR style sockets and an in line supply for other regions. (The power supplies used are the existing Gasman II, Custodian and Triple Plus Plus units). The standard vehicle lighter socket lead can also be used to power the charger. The single way charger can also optionally be equipped with the comms interface to PC using the RS232 interface lead. The USB/RS232 converter currently used for Tetra is suitable for interfacing to PCs which have USB only connection.

Key features

Physical attributes

- Tough and robust with full rubber overmoulding
- Dust and waterproof to IP65/67
- Lightweight – only 90-130g dependent on version
- Small size – only 90x48x24mm
- Single button operation
- Sturdy metal pocket clip
- Optional alligator clip
- Shoulder strap optional
- Chest harness optional
- Fully interchangeable i-module sensors give total flexibility
- Sensor at top

Battery

- Rechargeable version for all gas types
- 12 hours minimum life for flammable on single charge
- Simple drop in charger
- Combined charger/interface for data communications
- Single and five way chargers available
- Full recharge in less than 6 hours
- Dry cell version for toxic gases and oxygen
- 6 month minimum battery life (24 hours per day)

Operational convenience

- Autozero on start up selectable
- Audible and visual confidence signals
- Battery status indicator showing proportional remaining life
- Field Gas (Bump) Test and Calibration capability
- Simple functional menu with double click access
- 30 day advance calibration due warning on start up
- Calibration overdue warning

Alarm function

- Audible visual and vibrating alarms
- Loud 95dBA audible alarm
- Dual colour red/blue visual alarm
- Visual alarms at top
- Vibrating alarm standard
- Dual level alarms for gas concentration
- 8 hour and 15 minute TWA alarm
- Low battery warning and alarm

Display characteristics

- Custom LCD display with backlight
- 4 Character /digit starburst main display
- Large characters for easy reading
- Display symbols for mode
- Display of units of measurement
- Flammable units selectable LEL, LIE or UEG
- Display of battery status
- Display recall for peak and TWA
- TWA display alternates between 8 hour and 15 minute values

Data and interface

- Full timed datalogging
- Memory for 90 shifts @10 hours per shift
- Event logging
- Memory for 90 shifts at 54 events per shift
- Simple easy to use PC software
- ATEX, UL, CSA and IECEx approvals

Bid specifications

The instrument must meet the following requirements:

Physical specifications

Size	Maximum size 90x48x24mm/3.5x1.9x0.95" (HxWxD)
Weight	Not more than 130g/4 3/4oz Flammable version, 100g/3 3/4oz for oxygen or 90g/3 1/4oz for toxic
Case material	High strength polycarbonate with full elastomeric overmoulding
Protection	The Monitor will meet IP65/IP67 for dust and water ingress protection
Attachments	The monitor shall have an integral metal pocket clip with the option of an alligator style clip. A harness plate for use with shoulder strap and chest harness must be available

User interfaces

Display	Custom LCD display with backlight
Symbols	The monitor shall provide simple screen symbols to indicate operational status to include: • Flashing OK symbol to indicate healthy operation • Battery icon to indicate proportional remaining battery life
Status messages	The monitor shall provide advance warning of calibration due commencing 30 days prior to expiry, plus warning of fault condition requiring servicing
Language	The unit shall be able to display messages in alternative languages
Function control	The monitor shall have a single operator button providing on, off, reset and menu access functions
PC interface	The monitor will interface to a PC through a combined charger interface. The supporting PC software will be compatible with all WindowsTM versions from 95 onwards

Monitoring capability

Sensor modules	All sensors used are to be fully interchangeable intelligent pre-calibrated modules with Modbus communications to the main instrument microprocessor
Sensor types	Poison resistant catalytic bead combustible gas sensors. Electrochemical sensors for oxygen and toxic gases
Gases detected	Flammable gases, oxygen, toxic gases
Sensor life	Typically 3 years for toxic gas sensors, 2 years for oxygen, 5 years for combustible gas
Measurement specification	Available gas types and ranges for the monitor must include:

Gases	Range	Increment
Combustible Gases	0-100%LEL	1%LEL
Oxygen	0-25%	0.1%
Hydrogen Sulphide	0-100ppm	1ppm
Carbon Monoxide	0-500ppm	1ppm
Sulphur Dioxide	0-10ppm	0.1ppm
Chlorine	0-20ppm	0.01ppm
Nitrogen Dioxide	0-10ppm	0.1ppm
Ammonia	0-50ppm	1ppm
Ozone	0-1ppm	0.01ppm
Hydrogen	0-1000ppm	1ppm
Hydrogen Cyanide	0-25ppm	1ppm
Hydrogen Fluoride	0-10ppm	0.1ppm
Hydrogen Chloride	0-10ppm	3ppm
Nitric Oxide	0-100ppm	10ppm
Ethylene Oxide	0-10ppm	1ppm

Operation

Instrument start up	Single button press. Start up sequence to indicate instrument software version and internal diagnostic tests
Instrument shut down	The monitor must not be able to be turned off by an accidental button press. Switch off will be by means of a timed button hold with countdown to off
Confidence signal	The monitor will give a blue LED flash every 10 seconds accompanied by sounder tone. Confidence signals can be deselected using PC software
Backlight	Backlight for the display is to switch on automatically in low light conditions. The backlight will also switch on in alarm condition

Menu options	Unit to have an operating menu selectable by double clicking the button. The menu should provide access to peak reading mode, 8 hour and 15 minute TWA display for toxic sensors and selection of zero mode
Auto zero	The monitor shall have an autozero function, which can be programmed either to be fully automatic on start up, or to require a user confirmation
Gas Test	The monitor must incorporate software for automatically determining the outcome of a function test, displaying pass or fail on the LCD screen and recording the result in its event logger

Calibration

User calibration	The monitor is to have field calibration capability using an accessory Gas Test Kit. This must involve no hidden buttons, nor disassembly of the monitor. The calibration results and data must be logged in the event log file
Instrument shut down	The supporting PC software must be capable of calibrating the monitor. The PC software must record and store every calibration performed
Calibration due	The monitor shall on start up give an advance notice of the calibration validity expiring within 30 days, indicating the remaining number of days of valid calibration
Calibration overdue	The monitor shall indicate on start up when calibration validity has expired. It will be possible to configure calibration overdue as a 'lock out' function, preventing instrument use

Batteries and charging

Rechargeable battery version	Battery type is to be rechargeable lithium-ion, capable of charge retention of 70% for one year, and without 'memory' effects
Run time	The monitor will run for more than 12 hours on a single charge
Charging	Recharging time for a fully discharged battery must be less than 6 hours
Non rechargeable battery version	Lithium cell battery
Run time	Battery lifetime shall be up to 2 years

Alarms

Alarm types	The monitor shall be equipped with audible, visual and vibrating alarms
Alarm levels	The monitor shall provide two levels of instantaneous alarm for each gas channel. For toxic channels there will also be a Time Weighted Average alarm which shall be triggered by either the 8-hour or 15-minute averages.
Audible alarms	The audible alarm shall provides a sound output of 95dBA. There shall be a range of alarm sounds available which can be user selected to suit preferences. It shall be possible to allocate differing alarm sounds to different alarm levels
Visual alarm	The monitor shall have a dual colour, red/blue visual alarm
Vibrating alarm	The monitor will have a built in vibrating alarm as standard
Low battery warning	The monitor will warn of battery depletion when there is 20% remaining life available
Shutdown	In the event that battery capacity is too low for safe operation the monitor will give a shut down warning and automatically switch off. Configuration data must be maintained on shut down.

Logging

Type of logging	The monitor shall feature both timed data logging and event logging
Data logging	The data logging memory capacity shall be sufficient for 900 hours of data at a 1 minute logging interval. The interval shall be user adjustable
Event logging	The monitor will log the occurrence of events to include: switch on and off; zeroing; gas test and calibration; battery level; alarms;
Log capacity	The logging capacity shall >5000 events

Sampling

Sample line attachment	The monitor will have a readily fitted flow cap to allow the attachment of sampling line

Approvals and standards

Intrinsic safety	The monitor must be approved as follows: • North American approval by a Nationally Recognised Testing Laboratory as intrinsically safe to Class I Division 1 Groups A B C and • European approval by a notified body to meet ATEX II 2G EEx iad IIC T4 for flammable gas and ATEX II 1G EEx ia IIC T4 for toxic and oxygen versions • IECEx approval to Ex iad IIC T4 for flammable gas and Ex ia IIC T4 for toxic/oxygen versions • The approvals must be valid for an ambient temperature range of 4ºF -131ºF (-20ºC to +55ºC)
Operational standards	The Monitor will comply with the requirements of BS EN61779, BS EN 50104 2000, and BS EN 45544 for operating and measurement performance
Manufacturing approval	The manufacturer must have a Quality Assurance system approved to ISO 9001:2000

Warranty and delivery

Warranty	The monitor shall be delivered with a 2-year warranty to include sensors
Supply includes	The monitor shall be delivered complete with a Test Certificate, Instruction Manual, calibration adaptor and hose
Training	A training presentation must be available
Optional accessories	**Accessories to be available must include:** Alligator Clip Hard Hat Clip Chargers suitable for 230VAC and 110VAC Vehicle charger Charger interface for data communications Harness plate with shoulder strap and chest harness Carry case Aspirator assembly for diffusion units USB to RS232 converter PC Software Gas Test Kit